DOCUMENT RESUME

ED 251 682 CE 040 305

AUTHOR Rogers, Kay
TITLE Adapting Curriculum Materials for Microcomputer Use.
PUB DATE 4 Dec 83
NOTE 8p.; Paper presented at the American Vocational Association Convention (Anaheim, CA, December 4, 1983).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Authoring Aids (Programing); *Computer Assisted Instruction; Computer Software; Curriculum Development; *Guidelines; Instructional Materials; Material Development; *Microcomputers; Postsecondary Education; *Programed Instructional Materials; Programing; Technical Education; *Vocational Education; Vocational Schools
IDENTIFIERS *Francis Tuttle Vo Tech Center OK

ABSTRACT

As microcomputers have become increasingly more economical to purchase, vocational teachers have found that they have the equipment but little courseware for vocational-technical education areas. To help solve this problem, the staff of the Francis Tuttle Vo-Tech Center (Oklahoma) decided to develop their own vocational software and established guidelines to insure the quality of curriculum materials developed for computer-assisted instruction (CAI) in vocational education. The Center first established that the following criteria must be met: support of teachers, service to many learners, frequency of delivery, multi-program use, stable instructional content, and the most appropriate and effective instructional method available. The Center established the following guidelines for development of software: (1) microcomputer use must be appropriate; (2) team development and review are needed; (3) development and acquisition should be coordinated by the computer curriculum specialist; (4) quality control measures must be taken; (5) standards for presentation must be followed; (6) originals must be secured (only copies used); (7) programs must be validated through pilot testing; (8) programs must be documented; (9) lessons are to be updated yearly only; (10) students must evaluate programs after each use; and (11) copyright laws must be followed. These guidelines are intended to ensure the best possible use of the microcomputer with limited resources. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED251682

VOCATIONAL INSTRUCTIONAL MATERIALS PROGRAM

Second General Session, Part II

Topic II: "Adapting Curriculum Materials for Microcomputer Use"

Kay Rogers, Ph.D.
Director of Curriculum and Media Development
The Francis Tuttle Vo-Tech Center
12777 N. Rockwell
Oklahoma City, Oklahoma 73142
(405) 722-7799

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

K Rogers

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

AVA Convention - December 4, 1983

CE 040 305

BACKGROUND

The effectiveness of computer-assisted instruction is dependent upon the quality and reliability of hardware and instructional software (courseware). Since computer-based education has been in various stages of development for two decades, considerable amounts of instructional software has emerged. However, most materials to date have been produced for basic skills and the elementary level. Although much of the courseware available for use on the microcomputers is well designed, much more needs to be developed to meet the demands of vocational-technical education.

As microcomputers are readily available and are becomming increasingly more economical to purchase and to maintain, vocational teachers are finding that they have microcomputers in their schools but discover limited courseware for technical vocational education areas. Thus, some educators have chosen to become their own suppliers of consumer-based products in order to bridge the "courseware gap." Because it has become possible to design and author customized courseware for a microcomputer system without the need for extensive microcompter programming knowledge, today's teachers can now develop at least some of their own microcomputer courseware. Therefore, the teachers are better able to achieve their program objectives and to meet the specific needs of their students.

INTRODUCTION

Recently, The Francis Tuttle Vo-Tech Center decided to include computer assisted instruction as a medium in their curriculum development process. Therefore, guidelines were established and adopted in order to coordinate this major commitment of resources and to ensure top quality instructional delivery.

Computer assisted instruction (CAI) in this paper refers to the process in which a microcomputer becomes the prime deliverer of instruction. More specifically, students of CAI sit in front of a television-like monitor and interact with the computer through a keyboard. The computer directs this process through the presentation of materials to the student and periodically gives the student an opportunity to solve problems. Further, the computer can tutor, game, drill, or simulate a real-world situation with a student on the material in a lesson.

PURPOSE

The purpose of this presentation will be to explain the role that the microcomputer is playing at The Francis Tuttle Vo-Tech Center in the area of Computer assisted instruction. Specifically, guidelines to be considered when adapting curriculum materials for computer assisted instructional use will be discussed.

IDENTIFICATION/SELECTION OF DEVELOPMENT PROJECTS

While almost any instructional area could use computer delivery, not all areas are appropriate for adapting curriculum for computer development. Therefore, to assist in the effective and efficient identification and selection of those areas most appropriate for computer assisted instructional delivery, some **criteria** and **guidelines** must be established to guide this process.

CRITERIA OF KEY IMPORTANCE

(1) Support of teacher

(2) Serves many learners

(3) Frequency of delivery

(4) Multi-program use

(5) Instructional content is stable and

(6) Most appropriate and effective instructional method

DEVELOPMENTAL GUIDELINES

A. **Appropriate Uses of the Microcomputer**

1. Utilization of the microcomputer for delivery of instruction should occur only after careful assessment of key criteria and a determination has been made that is the most appropriate.

B. **Team Development and Review**

1. All development of computer assisted instruction should be conducted through the use of a team approach. (The team consists of the Director or Coordinator of Curriculum, the Computer Curriculum Specialist, and the program teacher.)

2. All commerically prepared programs being evaluated for their usefulness in a program area should be previewed through the use of a "team" approach also.

C. **Coordination of Development and Acquisition**

1. The Computer Curriculum Specialist should be assigned the responsibility for monitoring and coordinating development efforts and acquisition of computer related instructional materials.

D. **Quality Control Measures**

1. All development of computer assisted instruction should be coordinated through the Curriculum Development Team. Instructors are encouraged to develop their own lessons. However, these lesson development projects should be developed utilizing the school's selected authoring language (AVA/MVA) and following approved development guidelines.
2. All development of computer assisted instruction should have a minimum of three approval cycles. These approvals should be obtained upon completion of every project's **planning, development** and **validation** phases.
   a. Authority for granting these approvals is vested in the Curriculum Development Team.
3. All commerically prepared software under consideration for purchase and use in a particular program area should be coordinated through the Curriculum and Media Center.

E. **Presentation of Computer Developed Materials**

1. Every computer based instruction lesson that is custom-developed should include a minimum of three to five display frames. These frames are: (1) a title frame, (2) specific unit (lesson) objectives frame, (3) a directions frame, (4) a summary frame and, (5) an ending frame.
2. Every computer screen display should include some form of instruction to the learner. A suggested statement is as follows: "PRESS RETURN TO GO ON."

3. Every computer program developed should include a minimum of two "restart" points.

4. Every computer program developed should be designed so that approximate student interaction time does not exceed 25 minutes in length.

5. Computer programs which require the use of graphics to display a picture should give first priority to displaying the picture through a video/slide medium. Only when video/slide or "paper" format is inappropriate should a computer generated graphic be used as a part of the program.

F. **Original Computer/Video Productions**

1. All orginal computer program diskettes, videotapes and printed materials should be placed in a secure permanent storage location. (Only copies should be used.)

G. **Validation**

1. All computer and/or computer/video programs should, upon completion of the development phase, be validated by pilot testing the lesson with a minimum of three students.

2. Problem areas identified as part of the validation process should be corrected prior to full-scale implementation.

H. **Documentation**

1. All computer assisted instructional lessons developed should have documentation prepared upon receipt of final approval for implementation. This documentation should contain all the necessary operational information.

I. **Lesson Updates**

1. All computer assisted instructional lessons in need of revision should be revised on a once-a-year basis only.

J. **Evaluation of Programs**

1. Each time a lesson is completed by a student, a "paper and pencil" evaluation form should be completed by the student. The Learning Center staff should route all completed forms to the Computer Curriculum Specialist for processing.

K. **Copyright Laws**

1. Strict adherence to copyright laws as they relate to printed as well as computer media duplication should be followed. No reproductions should be allowed without appropriate approval.

CONCLUSION

Computer-assisted instruction offers individualized self-paced instruction for a wide range of educational and training functions. Proponents of computer-based education view it as a means of equalizing educational opportunities and meeting training needs of today's complex and expanding technical industries. Thus, the computer appears to represent one possible tool for the improvement of the delivery of personalized, competency-based learning.

The role of the microcomputer in the classroom is unique and possibly cannot be viewed as just another medium of instructional delivery. However, educators must determine which instructional strategies can be best suited for delivery on the microcomputer and what guidelines they will use to accomplish this in order to best utilize limited resources.